

# DESIGN-BUILD OF THE INDIAN RIVER INLET CABLE STAYED BRIDGE

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DelDOT Winter Workshop  
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- ❖ Construction Update
- ❖ Design Considerations/Challenges
- ❖ Updated Construction Schedule
- ❖ Questions





# Site Tour Facts

## *You may be missing out:*

- ❖ 1,000 students from all over the state.
  - ❖ 20 school groups
  - ❖ 14 colleges
- ❖ Over 240 DelDOT employees from 13 different sections.
- ❖ We have gone to 8 different schools to date.
  - ❖ By years end we will have presented to approximately 1, 500 students state wide.
- ❖ Secretary of Transportation
- ❖ Countless Representatives
- ❖ The Press
- ❖ And some others...



# Our friends the whales





# Shorebirds









# Work in Progress...























Here is what has been constructed...



Piles



Footings/Substructure



Pylons



Falsework

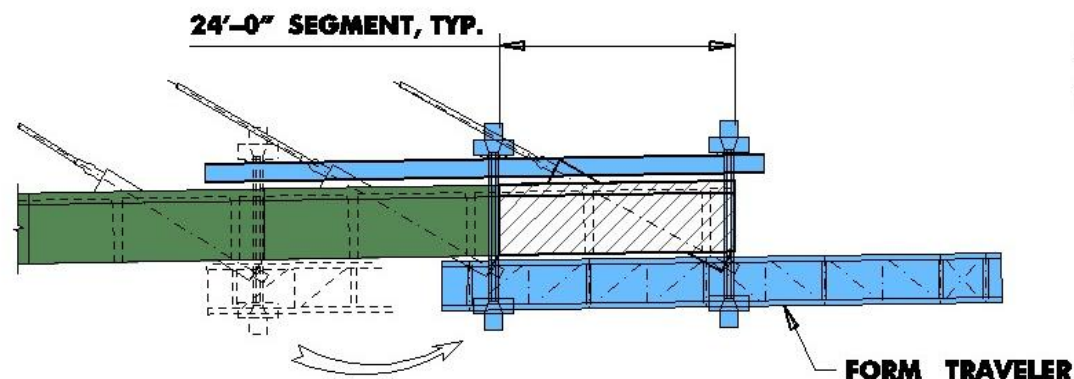


Superstructure (Not completed)

## Remaining Tasks

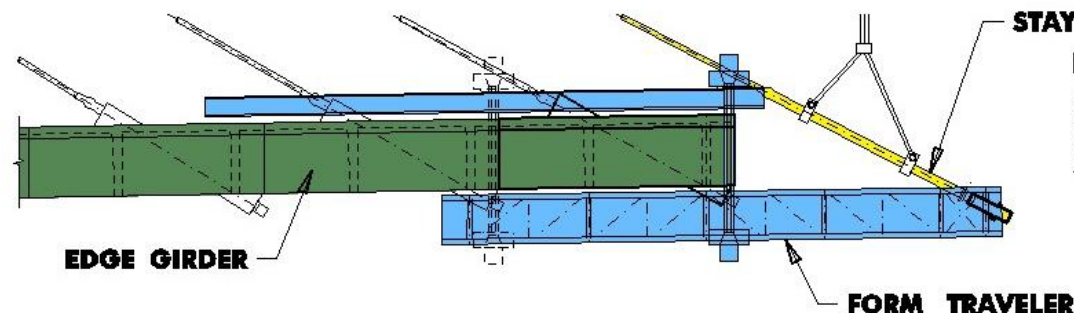
- ☐ Superstructure (on form traveler)
- ☐ Form Traveler
- ☐ Cable Stay System

# Form Traveler



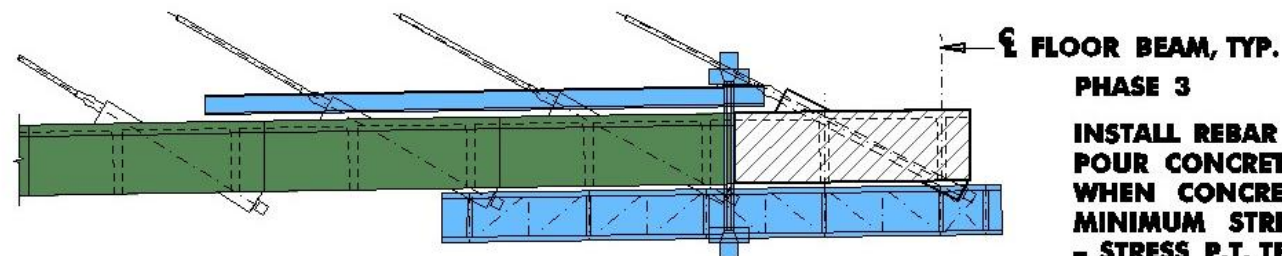
## PHASE 1

**LAUNCH FORM TRAVELER.**



## PHASE 2

**CONNECT STAY CABLE TO FRONT ANCHOR OF FORM TRAVELER, PARTIALLY STRESS STAY CABLE.**



## PHASE 3

**INSTALL REBAR CAGE. POUR CONCRETE.**  
**WHEN CONCRETE HAS REACHED A MINIMUM STRENGTH OF 4000 PSI:**  
 - STRESS P.T. TENDONS IN FLOOR BEAM.  
 - RE-STRESS STAY CABLES.

**FORM TRAVELER - TYPICAL ERECTION SEQUENCE**

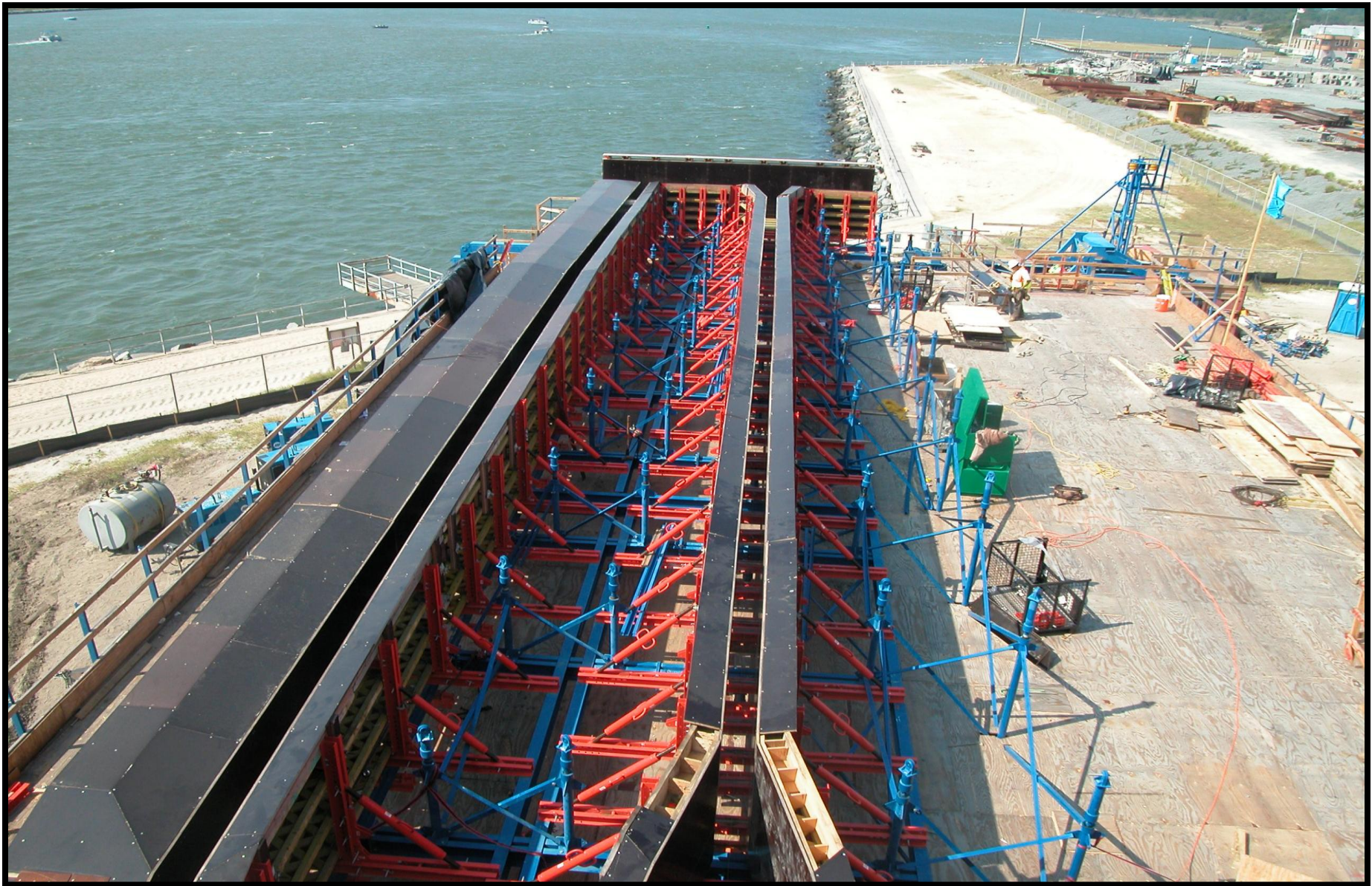


# Form Traveler Construction





# Form Traveler Construction





# Form Traveler Relocation









# Form Traveler Lift Operation





# Form Traveler Lift Operation





# Form Traveler Lifted





# Form Traveler At End Of Bridge





# Form Traveler DeckPour

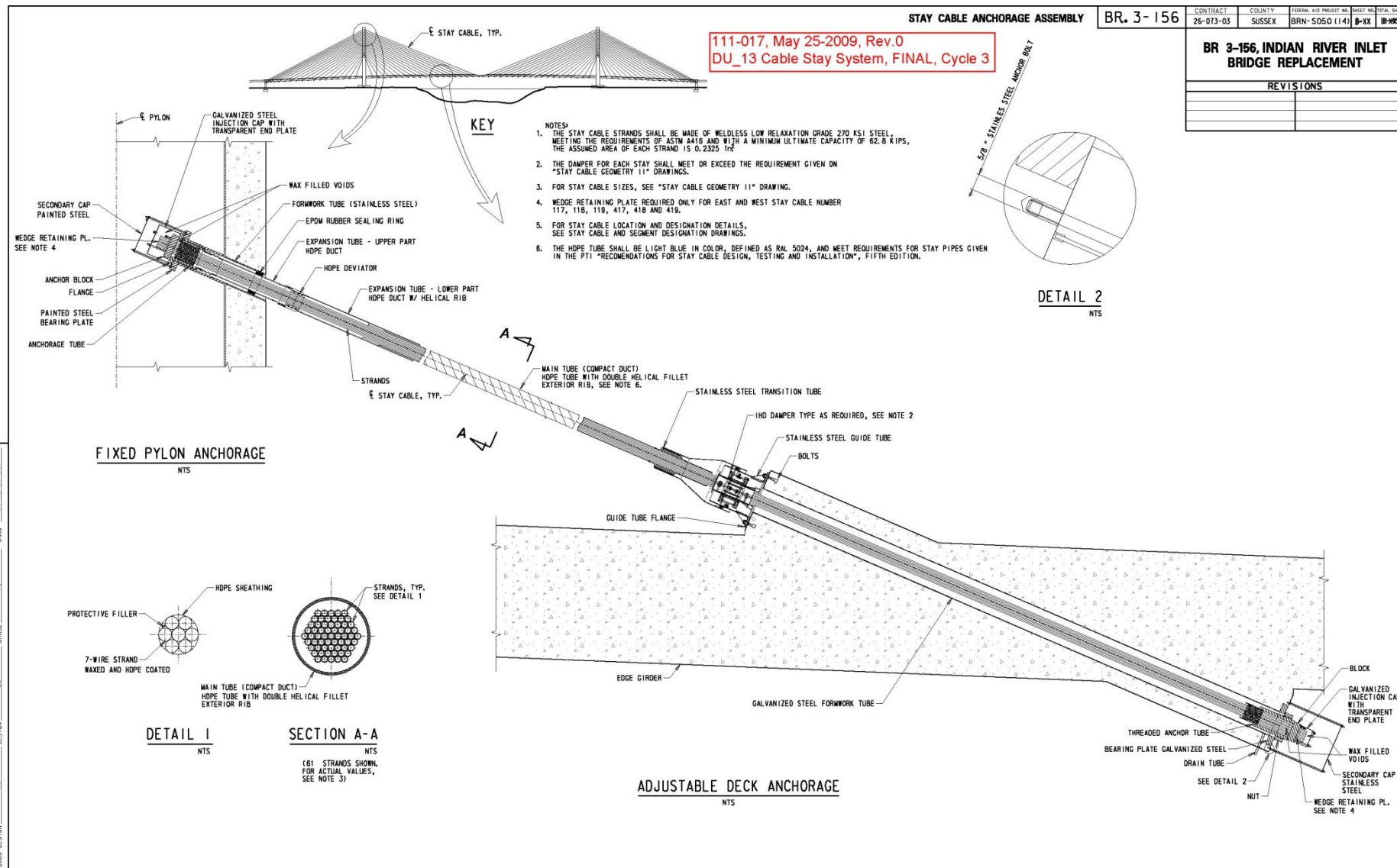




## Cable Stay System

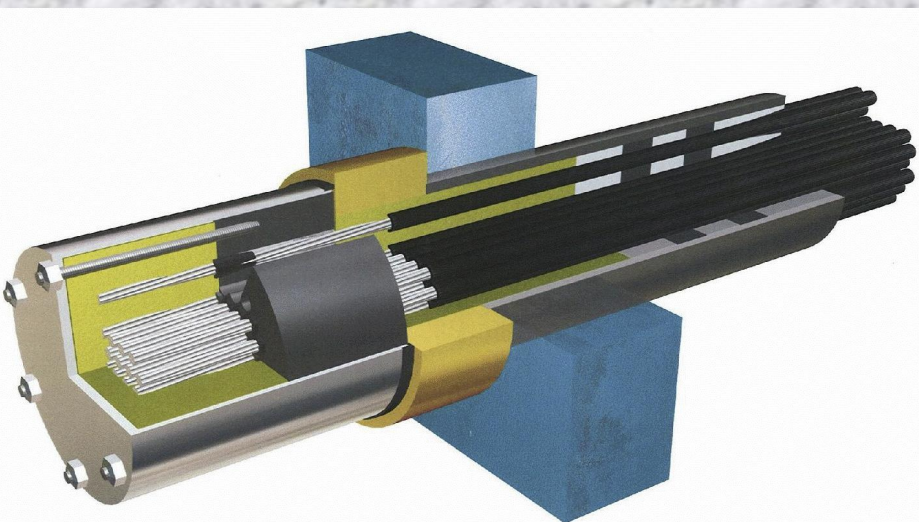
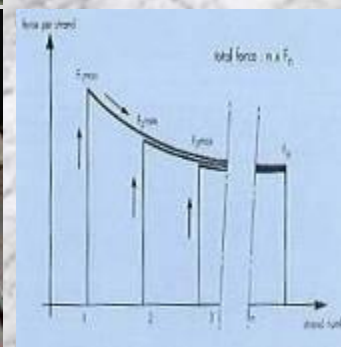
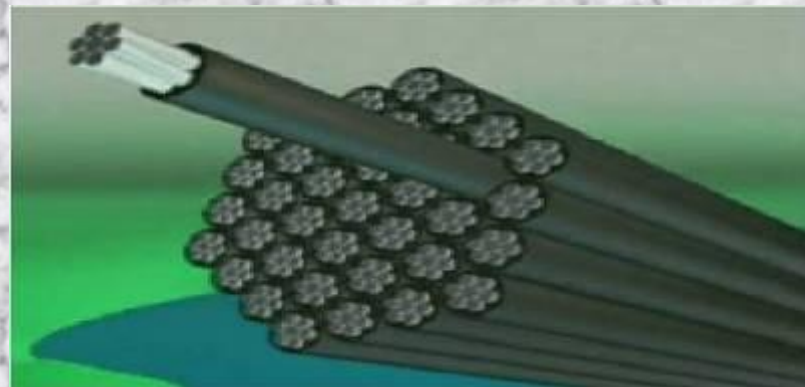


# Cable Stay System



# Cable Stay System

- Strands
  - ✓ 0.62" Diameter
  - ✓ Coextruded HDPE Sheathing
  - ✓ Wax Filled
- External HDPE Stay Pipe (Blue)
- Strands are non bonded and parallel
- Strands are individually stressed





# Cable Stay System





# Cable Stay System





# Cable Stay System





# Cable Stay System





- ❖ **Foundation Piles Installed** – 293 Precast Concrete Piles (36" x 36" x 100' long)
- ❖ **Cast-in-place Concrete Poured** – 20,600 of 36,000+ Cubic Yards
- ❖ **Reinforcing Steel Placed** – 7 of 12 Million Pounds
- ❖ **Concrete Testing Cylinders (DelDOT)** – 2000+ collected and tested
- ❖ **Stay Cables Completed** – 60 of 152
- ❖ **Stay Strand Installed** – 50 of 350 miles



- ❖ **Precast Floorbeams** – 76 of 76 cast and set
- ❖ **Bulb-Tees Girders** (100+ feet long) - 75 of 75 cast and set
- ❖ **U of D Instruments Installed** -56 of 84 embedded (125 total)
- ❖ **U of D Fiber Optic Cable** – 1 mile
- ❖ **Form Traveler Weight** – 300 tons Each
- ❖ **Pieces of Correspondence Logged** – 22,000 +
- ❖ **Budget** – Tracking \$500k below \$150M budget
- ❖ **Anticipated Availability to Traffic** – End of 2011.

- ❖ Officially awarded to George and Lynch
  - ❖ Bid Amount = \$11,625,940.29
- ❖ Construction of new Indian River Inlet Bridge roadway approaches.
  - ❖ Utilizing lightweight foam concrete for embankments
  - ❖ Install new sand bypass system
  - ❖ Construct new dune on northeast side of inlet
  - ❖ Demolish existing bridge
- ❖ **Estimated start = March 2011**



- ❖ **Phase 1** = Construction of temporary crossovers (March 2011- Memorial Day 2011)
- ❖ **Phase 2** = Lightweight foam concrete placement and SR-1 approach roadway construction and shift traffic onto new bridge (Memorial Day 2011-December 2011)
- ❖ **Phase 3** = Construction of access roads, park entrances, dune construction and existing bridge demolition. (December 2011-May 2013)

An aerial photograph of the Indian River Inlet Bridge, a cable-stayed bridge spanning a large body of water. The bridge has two tall, white, A-frame pylons. The bridge deck is partially completed, with some sections still under construction. The surrounding area includes a grassy field, a road, and some buildings. The sky is clear and blue.

**Are you done yet?**



# FORM TRAVELER





# FORM TRAVELER





# FORM TRAVELER





# FORM TRAVELER





# FORM TRAVELER



# Temporary Stay





# Temporary Stay







# Questions and Comments?